

METHOD AND APPARATUS FOR  
ULTRASONIC CONTINUOUS, NON-INVASIVE  
BLOOD PRESSURE MONITORING

ABSTRACT OF THE DISCLOSURE

5        Ultrasound is used to provide input data for a blood pressure  
estimation scheme. The use of transcutaneous ultrasound provides arterial  
lumen area and pulse wave velocity information. In addition, ultrasound  
measurements are taken in such a way that all the data describes a single,  
uniform arterial segment. Therefore a computed area relates only to the  
arterial blood volume present. Also, the measured pulse wave velocity is  
directly related to the mechanical properties of the segment of elastic tube  
(artery) for which the blood volume is being measured. In a patient monitoring  
application, the operator of the ultrasound device is eliminated through the  
10    use of software that automatically locates the artery in the ultrasound data,  
e.g., using known edge detection techniques. Autonomous operation of the  
ultrasound system allows it to report blood pressure and blood flow traces to  
the clinical users without those users having to interpret an ultrasound image  
or operate an ultrasound imaging device.